

**PART 1 – GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings, Contract Conditions and other Technical Specifications apply to this Section insofar as applicable.

**1.02 SUMMARY**

- A. This Section specifies administrative and procedural requirements governing the Contractor's Schedule of Values which, when approved, is used as the basis for Applications for Payment to the Contractor.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
  - 1. Section 01300, SUBMITTALS, Contractor's Construction Schedule and Submittal Schedule.
  - 2. Conditions of the Contract: Progress payments, Retainages, and Final Payment.
  - 3. Section 01700, CONTRACT CLOSEOUT, Final Payment.

**1.03 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
  - 1. Submit the Schedule of Values to the Contracting Officer within ten (10) days after the Award of Contract for review and comment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project Name and Location.
    - b. Name of the Architect/Engineer.
    - c. Project number and contract number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of Work.
    - c. Additive Bid Items by number listed in Section 01030, ADDITIVES BID ITEMS.
    - d. Change Orders (numbers) that affect value.
    - e. Dollar Value.
    - f. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  - 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
  - 4. Round amounts to the nearest whole dollar; the total shall equal the Contract Sum.

5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed. Breakdown the value into the following sub-values:
  - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing.
  - b. Cost of material delivered and unloaded at Project site with taxes paid.
  - c. Installation cost including overhead and profit.
6. Overhead and Profit: For the various portions of the work, include a directly proportional amount of the contractor's overhead and profit.
7. Schedule Updating: Update and resubmit the Schedule of Values prior to each Applications for payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

**1.04 APPLICATIONS FOR PAYMENT**

- A. Procedures for Application for Payment shall be as specified in Conditions of the Contract.

**PART 2 – PRODUCTS**

Not Used

**PART 3 – EXECUTION**

Not Used

**END OF SECTION**

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.
  - 1. "Cutting and patching" is performed for coordination of the work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.
  - 2. Cutting and patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".
  - 3. "Demolition" and "selective demolition" are recognized as related-but-separate categories of work, which may or may not require cutting and patching as defined in this section; refer to "Demolition" and "Selective Demolition" sections of Division 2.
- B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.
  - 1. Unless otherwise specified, requirements of this section apply to mechanical and electrical work. Refer to Division 15 and Division 16 sections for additional requirements and limitations on cutting and patching or mechanical and electrical work.
- C. Cutting and patching of mechanical equipment, components and materials (piping, ductwork, equipment, etc.) shall be performed by the Mechanical Trade Contractor.
- D. Cutting and patching of electrical equipment, components and materials (conduit, sleeves, equipment, etc.) shall be performed by the Electrical Contractor.
- E. Cutting and patching of existing structures (through walls, floors, ceilings, etc.) to accommodate equipment, components and materials of all Contractors, including the Mechanical and Electrical Contractors, shall be performed by the General Contractor and/or his designated Subcontractor.
- F. Cutting and patching of new structures (through walls, floors, ceilings, etc.) to accommodate installation of ill-timed work or removal and replacement of defective work or work not conforming to requirements of contract documents, shall be performed by the General Contractor and/or his designated Subcontractor, and costs shall be back charged to the appropriate Trade Contractor.

**1.3 QUALITY ASSURANCE**

- A. Requirements for Structural Work: Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ration.

1. Structural steel.
  2. Miscellaneous structural metals including lintels, equipment supports, stair systems and similar categories of work.
  3. Structural concrete.
  4. Foundation construction.
  5. Bearing and retaining walls.
  6. Structural decking.
  7. Piping, ductwork, vessels and equipment.
- B. Operational and Safety Limitations: Do not cut and patch operational elements or safety-related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased safety.
1. Shoring, bracing and sheeting.
  2. Primary operational systems and equipment.
  3. Water/moisture/vapor/air/smoke barriers, membranes and flashings.
  4. Noise and vibration control elements and systems.
  5. Control, communication, conveying and electrical wiring systems.
- C. Visual Requirements: Do not cut and patch work exposed on the building's exterior or in it's occupied spaces, in a manner that would, in the Contracting Officer's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch work in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by the Contracting Officer to be cut and patched in a visually unsatisfactory manner. If possible, retain the original installer or fabricator, or another recognized, experienced and specialized firm to cut and patch the following categories of exposed work:
1. Processed concrete finishes.
  2. Roofing.
  3. Acoustical ceilings.
  4. HVAC enclosures, cabinets or covers.

#### 1.4 SUBMITTALS

- A. Procedural Proposal for Cutting and Patching: Submit proposed procedures for this work well in advance of the time the work will be performed, and request approval to proceed. Include the following information, as applicable, in the submittal:
1. Describe the nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Describe anticipated results of the work in terms of changes to existing work including structural, operational and visual changes, as well as other significant elements.
  2. List products to be used and firms that will perform the work.

3. Give dates when work is expected to be performed.
4. List utilities that will be disturbed or otherwise be affected by work including those that will be relocated and those that will be out of service temporarily. Indicate how long utility service will be disrupted.
5. Where cutting and patching of structural work involves the addition of reinforcement, submit details and engineering calculations to show how that reinforcement is integrated with original structure to satisfy requirements.
6. Approval by the Contracting Officer to proceed with cutting and patching work does not waive the Contracting Officer's right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.

## PART 2 -- PRODUCTS

### 2.1 MATERIALS

- A. General: Except as otherwise indicated, or as directed by the Contracting Officer, use materials for cutting and patching that are identical to existing materials. If identical materials are not available or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal or better performance characteristics.

## PART 3 -- EXECUTION

### 3.1 INSPECTION

- A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

### 3.2 PREPARATION

- A. Temporary Support: To prevent failure, provide temporary support of the work to be cut.
- B. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.
  1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- C. Take precautions not to cut existing pipe, conduit or duct serving the building that are scheduled to be relocated until provisions have been made to bypass them.

### 3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Contracting Officer, proceed with cutting and patching at the earliest feasible time, and complete work without delay.

- B. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible, review proposed procedures with the original installer. Comply with original installer's recommendations.
1. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to the size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
  2. Comply with requirements of applicable sections of Division 2 where cutting and patching requires excavating and backfilling.
  3. Bypass utility services such as pipe and conduit before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut off conduit and pipe in walls or partitions to be removed. After bypass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.
- C. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
1. Where feasible, inspect and test patched areas to demonstrate integrity of work.
  2. Restore exposed finishes of patched areas and, where necessary, extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.
  3. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.
    - a) Where patch occurs in a smooth, painted surface, extend final paint coat over entire unbroken surface containing patch after patched area has received prime and base coat.
  4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

### 3.4 CLEANING

- A. Thoroughly clean areas and spaces where work is performed or used as access to work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

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END OF SECTION

PART 1 -- GENERAL1.1 DESCRIPTION OF REQUIREMENTS

- A. Coordinate work of trades, and schedule elements of alterations and renovation work by procedures and methods to expedite completion of the work.
- B. In addition to demolition specified, and that specifically shown, cut, move or remove items as necessary to provide access or to allow alterations and new work to proceed. Include such items as:
  - 1. Repair or removal of hazardous or unsanitary conditions.
  - 2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.
  - 3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete.
  - 4. Cleaning of surfaces and removal of surface finishes as needed to install new work and finishes.
- C. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a workmanlike transition to adjacent new items of construction.

1.2 SEQUENCE AND SCHEDULES

- A. Schedule work in the sequences and within times specified in Section 01010.
- B. Submit separate detailed sub-schedule for alterations work, coordinated with the construction schedules. Show:
  - 1. Each stage of work, and dates of occupancy of areas.
  - 2. Date of substantial completion for each area of alterations work, as appropriate.
  - 3. Trades and Subcontractors employed in each stage.

1.3 ALTERATIONS, CUTTING AND PROTECTION

- A. Assign the work of moving and removal to trades qualified to perform the work in a manner to cause the least damage to each type of work.

- B. Cutting of existing construction required by various Subcontractors to receive their equipment shall be performed by the General Contractor and/or his designated Subcontractor.
- C. Perform cutting and removal or work to remove minimum necessary, and in a manner to avoid damage to adjacent work.
  - 1. Cut finished surfaces such as masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.
- D. Perform cutting and patching as specified in Section 01045.
- E. Protect from damage existing finishes, equipment and adjacent work which is scheduled to remain.
  - 1. Protect existing and new work from weather and extremes of temperatures.
    - (a) Maintain existing interior work above sixty (60) degrees Fahrenheit.
    - (b) Provide weather protection, waterproofing, heat and humidity control as needed to prevent damage to remaining existing work and to new work.
- F. Provide temporary enclosures to separate work areas from existing building and from areas occupied by the Owner, and to provide weather protection.

## PART 2 -- PRODUCTS

### 2.1 SALVAGED MATERIALS

- A. Salvage sufficient quantities of cut or removed material to replace damaged work of existing construction, when material is not readily obtainable on current market.
  - 1. Store salvaged items in a dry, secure place on site.
  - 2. Items not required for use in repair of existing work shall remain the property of the Owner.
  - 3. Do not incorporate salvaged or used material in new construction except with permission of the Contracting Officer.



## 2.2 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

- A. General requirements that work be complete:
1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.
    - (a) Generally, contract documents will not define products or standards of workmanship present in existing construction; the Contractor shall determine products by inspection and any necessary testing, and workmanship by use of the existing workmanship as a sample of comparison.
  2. Presence of a product, finish or type of construction, requires that patching, extending or matching shall be performed as necessary to make work complete and consistent to identical standards of quality.

## PART 3 -- EXECUTION

### 3.1 PERFORMANCE

- A. Patching of existing construction to accommodate equipment, components and materials of all Contractors shall be performed by the General Contractor and/or his designated Subcontractor whose material is similar to the adjacent existing construction in the following areas:
1. Holes adjacent to penetrations of electrical conduit, plumbing pipes and H & V ducts exposed to view
  2. Holes adjacent to penetration of electrical conduit, plumbing pipes and H & V ducts through fire walls as required by code
  3. Areas adjacent to installation of new doors, windows, etc.
  4. Removal and patching of damaged material where indicated
  5. Patch areas exposed to view after removal of existing construction such as chalkboard, tackboard, chair rails, base, cove and intersecting walls as indicated.
- B. Patch and extend existing work using skilled mechanics who are capable of matching existing quality of workmanship. Quality of patched or extended work shall be not less than that specified for new work.

### 3.2 ADJUSTMENTS

- A. Where partitions are removed, patch floors, walls and ceilings with finish materials to match existing materials.
  - 1. Where removal of partitions results in adjacent spaces becoming one, rework floors and ceilings to provide smooth planes without breaks, steps or bulkheads.
    - (a) Where extreme change of plane (two (2) inches or more) occurs, request instructions from the Contracting Officer as to method of making transition.
- B. Trim and refinish existing doors as necessary to clear new floors.
- C. Where existing ceilings are to be cut or removed the contracting officer shall be notified so he can determine the type of patch acceptable.

### 3.3 DAMAGED SURFACES

- A. Patch or replace with matching material any portion of an existing finished surface which is found to be damaged, lifted, discolored or shows other imperfections.
  - 1. Provide adequate support of substrate prior to patching the finish.
  - 2. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.
  - 3. When existing surface finish cannot be matched, refinish the entire surface to the nearest intersection.

### 3.4 TRANSITION FROM EXISTING TO NEW WORK

- A. When new work abuts or finishes flush with existing work, make a smooth and workmanlike transition. Patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five (5) feet.
  - 1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate the existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to the finished surface.

3.5 CLEANING

- A. Perform periodic and final cleaning as specified in Section 01710.
  - 1. Clean Owner-occupied areas daily.
  - 2. Clean spillage, overspray and heavy collection of dust in Owner-occupied areas immediately.
- B. At the completion of work of each trade, clean the area and make surfaces ready for the work of successive trades.
- C. At the completion of alterations work in each area, provide final cleaning, and return space to a condition suitable for use by the Owner.

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**END OF SECTION**

**PART 1 – GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings, Contract Conditions and other Technical Specifications Sections apply to this Section insofar as applicable.

**1.02 SUMMARY**

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
  - 1. Contractor's progress schedule.
  - 2. Submittal schedule.
  - 3. Daily construction reports.
  - 4. Shop Drawings.
  - 5. Product Data.
  - 6. Samples.
  - 7. Quality assurance submittals.
  - 8. Construction photographs.
- B. Administrative Submittals: Refer to other Division 1 Sections and other contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
  - 1. Permits.
  - 2. Applications for Payment.
  - 3. Performance and payment bonds.
  - 4. Insurance certificates.
  - 5. List of subcontractors.
- C. Miscellaneous Submittals:
  - 1. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data", depending on whether the report is specially prepared for the project or is a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
  - 2. Warranties: Refer to the "Products and Substitutions" section for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements. In addition to copies desired for the Contractor's use, furnish two (2) executed copies of such warranties, bonds or agreements. Provide two (2) additional copies where required for maintenance manuals.
  - 3. Survey Data: Refer to the "Project Coordination" section for specific general requirements on property surveys, field measurements, quantitative records of actual work, damage surveys and similar data required by the individual sections of these specification. None of the specified copies will be returned.
    - (a) Survey Copies: Furnish two (2) copies of general survey data. Provide ten (10) copies of the final property survey.

- (b) Records of Actual Work: Furnish four (4) copies of records of actual work, one (1) of which will be returned for inclusion in the record documents as specified in the “Project Closeout” section.
- 4. Standards: Where submittal of a copy of standards is indicated, except when copies of standards are specified as an integral part of a “Product Data” submittal, submit a single copy of standards for the Contracting Officer’s use. Where workmanship, whether at the project site or elsewhere, is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.
- 5. Closeout Submittals: Refer to the “Project Closeout” section and to individual sections of these specifications for specific submittal requirements of project closeout information, materials, tools and similar items.
  - (a) Record Documents: Furnish a set of original documents as maintained on the project site.
  - (b) Operating and Maintenance Data: Furnish two (2) bound copies of operating data and maintenance manuals.
  - (c) Materials and Tools: Refer to the individual sections of these specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys and similar physical units to be submitted.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Section 01027, SCHEDULE OF VALUES.
  - 2. Section 01600, MATERIAL AND EQUIPMENT; Contractor’s list of Products.
  - 3. Section 01700, CONTRACT CLOSEOUT; Specifies requirements for submittal of Project Record Documents and warranties at project closeout.

### **1.03 DEFINITIONS**

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
  - 1. Preparation of Coordination Drawings is specified in Section 01040, COORDINATION, and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

### **1.04 SUBMITTAL PROCEDURES**

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
  2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Contracting Officer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
  3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
    - a. Allow 15 business days for initial review. Allow additional time if the Contracting Officer must delay processing to permit coordination with subsequent submittals.
    - b. If an intermediate submittal is necessary, process in the same manner as the initial submittal.
    - c. Allow 15 business days for reprocessing each submittal.
    - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Contracting Officer sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the contractor's review and approval markings and the action taken. Submittals not signed and stamped by Contractor will be returned without action.
  2. Include the following information on the label for processing and recording action taken.
    - a. Project name and Project number.
    - b. Date of submittal.
    - c. Name and address of the Contractor.
    - d. Name and address of the subcontractor.
    - e. Name and address of the supplier.
    - f. Name of the manufacturer.
    - g. Number and title of appropriate Specification Section.
    - h. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the contractor to the Contracting Officer using an Owner supplied transmittal form. The Contracting Officer will not accept submittals received from sources other than the Contractor.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
  2. Transmittal Form: USPFO-CT Form 3000, supplied by the Contracting Officer.
  3. Comply with progress schedule for submittals related to Work progress.
  4. Following Contracting Officer's review, revise and resubmit as required. Identify changes made since previous submittal.
  5. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report inability to comply with provisions.

**1.05 CONTRACTOR'S PROGRESS SCHEDULE**

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type. Contractor's progress schedule. Submit within 15 days after the date of Award of Contract.
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values." List units of work by Specification Section title.
  2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion. Allow space for notations and future revisions.
  3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
  4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
  5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
  6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Engineer's procedures necessary for certification of Substantial Completion.
- B. Phasing: On the schedule, show how requirements for phased completion to permit partial occupancy by the Owner affect the sequence of Work.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Contracting Officer, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
  2. Instruct recipients to report promptly to Contractor, in writing, problems apparent from projections shown on Schedule.
- D. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule to the Contracting Officer twice monthly; on the 15<sup>th</sup> and on the last business day of the month concurrent with Application for Payment.

**1.06 SUBMITTAL SCHEDULE**

- A. After development and acceptance of the Contractor's Progress Schedule, Contractor shall prepare a complete schedule of submittals. Submit the schedule within 10 days of the date of the contracting Officers acceptance of the contractor's Progress Schedule.
1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Progress Schedule.
  2. Prepare the schedule in chronological order. Provide the following information:
    - a. Scheduled date for the first submittal.

- b. Related Section number.
  - c. Submittal category (Shop Drawings, Product Data, or Samples).
  - d. Name of the subcontractor.
  - e. Description of the part of the Work covered.
  - f. Scheduled date for resubmittal.
  - g. Scheduled date for the Contracting Officer's final release or approval.
- B. Distribution: Following response to the initial submittal, print and distribute copies to the contracting Officer, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
  1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise and reissue the updated schedule concurrently with each Application for Payment.

#### **1.07 DAILY CONSTRUCTION REPORTS**

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Contracting Officer at weekly intervals:
  1. List of subcontractors at the site.
  2. Approximate count of personnel at the site.
  3. High and low temperatures, general weather conditions.
  4. Accidents and unusual events.
  5. Meetings and significant decisions.
  6. Stoppages, delays, shortages, and losses.
  7. Meter readings and similar recordings.
  8. Emergency procedures.
  9. Orders and requests of governing authorities.
  10. Change Orders received, implemented.
  11. Services connected, disconnected.
  12. Equipment or system tests and startups.
  13. Partial Completions, occupancies.
  14. Substantial Completions authorized.

#### **1.08 SHOP DRAWINGS**

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
  1. Dimensions; anchorage and fastening details including size and spacing; gages, thickness, welding details and joint types.
  2. Identification of products and materials included by sheet and detail number, with appropriate trade names.
  3. Compliance with specified standards.
  4. Notation of coordination requirements.
  5. Notation of dimensions established by field measurement.



6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8 ½ by 11 inches but no larger than 30 by 42 inches.
7. Each submittal: Submit one correctable, translucent, reproducible print and three blue or black-line prints. The reproducible print will be returned.
8. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

#### **1.09 PRODUCT DATA**

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.
  1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
    - a. Manufacturer's printed recommendations.
    - b. Compliance with trade association standards.
    - c. Compliance with recognized testing agency standards.
    - d. Application of testing agency labels and seals.
    - e. Notation of dimensions verified by field measurement.
    - f. Notation of coordination requirements.
  2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
  3. Submittals: Submit 4 copies of each required submittal. The Contracting Officer will return one marked with action taken and corrections or modifications required.
  4. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
    - a. Do not proceed with installation until a copy of reviewed Product Data is in the Installer's possession.
    - b. Do not permit use of unmarked copies of Product Data in connection with construction.

#### **1.10 SAMPLES**

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
  1. Submit Samples in the manner to facilitate review of qualities indicated. Include the following:
    - a. Specification Section number and reference.
    - b. Generic description of the Sample.
    - c. Sample source.
    - d. Product name or name of the manufacturer, including any catalogue or other identification number

- e. Compliance with recognized standards.
  - f. Availability and delivery time.
- 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
  - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
  - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
  - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
  - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
- 3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices.
  - a. The Contracting Officer will review and return preliminary submittals with the notations indicating selection and other action.
- 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Contracting Officer will return one set marked with the action taken.
- 5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal form.

#### **1.11 QUALITY ASSURANCE SUBMITTALS**

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
  - 1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

#### **1.12 CONSTRUCTION PHOTOGRAPHS**

- A. General: The Contractor shall employ a competent photographer to take construction record photographs monthly during course of Work.
- B. Provide photographs taken monthly, and at completion of major stages of construction including:
  - 1. Site clearing.
  - 2. Site grading.
  - 3. Demolition.
  - 4. Excavations.
  - 5. Pavements and curbing.
  - 6. Foundations.
  - 7. Framing.
  - 8. Masonry construction.
  - 9. Enclosure of building, including roofing.
  - 10. Exterior windows and glazing.
  - 11. Interior partitions and framing.
  - 12. Major equipment installations.
  - 13. Interior finishes.
  - 14. Landscaping.
- C. View and Quantities Required: At each specified time, photograph Project from three different views approved by the Contracting Officer. Provide three prints of each view.
- D. Negatives: Negatives shall remain property of photographer. Require that photographer maintain negatives for two years from Date of Substantial Completion of Project.
- E. Costs of Photography: The Contractor shall pay costs for specified photography and prints. Parties requiring additional photography or prints will pay photographer directly. Furnish additional prints to the Contracting Officer at commercial rates applicable at time of purchase.
- F. Prints: Provide 8 in x 10 in color prints on single weight print paper. Provide smooth surface, glossy finish.
- G. Identify each print back, listing name of project, orientation of view, date and time of exposure, name and address of photographer, and numbered identification of exposure.
- H. Techniques: Provide factual presentation, with correct exposure and focus, with high resolution and sharpness, maximum depth-of field, and minimum distortion.
- I. Views Required: Illustrate condition of construction and state of progress. At successive periods of photography, take at least one photograph from same overall view as previously. Consult with Contracting Officer at each period of photography for instructions concerning views required.
- J. Delivery of Prints: Deliver prints as soon as processed, two sets to the Contracting Officer and one for the Project Record File.

#### **1.13 GOVERNMENT'S ACTIONS**

- A. General: Engineer will review submittals, stamp and indicate action, and return to Contractor. Engineer will review submittals for the limited purpose of checking for conformance with information given and the design concept expressed in the contract Documents. Engineer's review and approval of submittals shall be held to limitations stated in the conditions of the Contract. In no case shall approval or acceptance by Engineer be interpreted as release of Contractor of responsibility to fulfill requirements of Contract Documents. No acceptance or approval of submittals, nor any indication or note marked by Engineer on submittals, shall constitute authorization for increase in Contract Sum.
- B. Engineer will annotate the transmittal for each submittal with an action required by the Contractor. Comments will indicate action taken as follows:
1. "APPROVED": No corrections, no marks: Resubmission no required.
  2. "APPROVED AS NOTED": Minor amount of corrections; all items can be fabricated without further corrections to original submittal; checking is complete and all corrections are deemed obvious without ambiguity. Resubmission not required.
  3. "APPROVED EXCEPT AS NOTED": Minor corrections required; items noted shall not be fabricated until further corrections of original submittal is completed and Engineer approval is obtained; checking is complete; clarify details of items noted by checker for approval; items without marks may be fabricated without further submittal. Resubmission required.
  4. "DISAPPROVED": Submittal does not conform to Contract Documents, and requires too many corrections, or is rejected for other justifiable reasons. Engineer will state reasons for rejection. Correct and resubmit. Do not fabricate.
- C. Other Action: Submittal for information or record purposes will be returned with no action marked.
- D. Required Resubmittals: Make corrections or changes to submittals required by Architect/Engineer and resubmit until approved. Revise initial shop drawings or product data. And resubmit as specified for initial submittal. Indicate changes made other than those requested by Engineer. Submit new samples as required for initial submittal.

#### **1.14 DISTRIBUTION BY CONTRACTOR**

- A. Distribution: When submittal is marked "APPROVED", or "APPROVED AS NOTED", make prints and copies and distribute to the Contracting Officer, subcontractors, suppliers, fabricators, and other parties requiring information from submittal for proper coordination and performance or Work. Print copies of shop drawings from approved reproducible only.

PART 2 – PRODUCTS Not Used

PART 3 – EXECUTION Not Used

END OF SECTION

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. General: Required inspection and testing services are intended to assist in the determination of probable compliance of the work with requirements specified or indicated. These required services do not relieve the Contractor of responsibility for compliance with these requirements or for compliance with requirements of the contract documents.
- B. Definitions: Quality control services include inspections, tests and related actions including reports performed by independent agencies and governing authorities, as well as directly by the Contractor. These services do not include contract enforcement activities performed directly by the Contracting Officer.
  - 1. Specific quality control requirements for individual units of work are specified in the sections of these specifications that specify the individual element of the work. These requirements, including inspections and tests, cover both production of standard products and fabrication of customized work. These requirements also cover quality control of the installation procedures.
  - 2. Inspections, tests and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures which facilitate overall compliance with requirements of the contract documents.
  - 3. Requirements for the Contractor to provide quality control services as required by the Government, governing authorities or other authorized entities are not limited by the provisions of this section.
- C. The Contractor shall employ and pay for the services of an independent testing laboratory, approved by the Contracting Officer, to perform (continuous) inspections as required, testing, engineering, and other specified services; to include, but not limited to:
  - 1. Soils: Inspect and test;
  - 2. Concrete: Design all mixes to contract requirements and test same;
    - a) Inspect reinforcement;
    - b) Inspect placement;
    - c) Perform seven (7) and twenty-eight (28) day tests on specimen cylinders;
  - 3. Sub-base, base and surface courses of bituminous paving;
  - 4. Reports: Prepare and distribute inspection and test reports;
  - 5. Miscellaneous: Perform any additional inspections or tests required by the legal authorities having jurisdiction.
- D. The Contracting Officer will employ services of an independent testing laboratory to perform testing on any additional material which the Contracting Officer feels may not comply with contract document requirements.
  - 1. If results of these tests show that material does not conform to the requirements of the contract documents, the cost of testing shall be borne by the Contractor.
  - 2. If results of these tests show that material conforms to the requirements of the contract documents, the cost of testing shall be borne by the Government.

- E. All invoices for payment of laboratory testing services shall be submitted to the Contracting Officer for his review and approval.

### 1.3 RESPONSIBILITIES

#### A. Contractor Responsibilities:

1. Use of testing services shall in no way relieve the Contractor of responsibility to furnish materials and construction in compliance with drawings and specifications.
2. When the Contractor's work will require inspection or test, the Contractor shall notify the Government twenty-four (24) hours in advance of such required tests or inspections.
3. At least twenty-four (24) hours shall be allowed for the inspection prior to any test or concrete placement. The inspection will be made after notification that all items have been installed for the test or preparatory for concrete placement. Should the inspection reveal that corrective measures are required or that the work is not complete, an additional twenty-four (24) hours will be allowed to complete the inspection after all work has been corrected or completed.
4. The Government shall be notified at least twenty-four (24) hours in advance of backfilling or encasing of any underground utility in order that an inspection may be made of the installation. Failure to provide such notification may require reopening of the trench, at the Contractor's expense.
5. Cooperate with laboratory personnel. Provide access to work and to manufacturer's operations.
6. Provide to the laboratory and the Contracting Officer for review the preliminary design mix proposed to be used for concrete and other material mixes which require control by the testing laboratory.
7. Furnish copies of products test reports as required.
8. Furnish incidental labor and facilities:
  - (a) to provide access to work to be tested.
  - (b) to facilitate inspections and tests.
  - (c) for storage and curing of test samples.
9. Provide and maintain, for the sole use of the testing agency, adequate area and curing box for the safe storage and proper curing of concrete test cylinders on the project site for the first twenty-four (24) hours, in accordance with ASTM C 31.
10. Furnish copies of mill test reports of shipments of cement and reinforcing steel to the Contracting Officer and testing agency, if required.
11. Notify laboratory sufficiently in advance of operations to allow for laboratory assignments of personnel and scheduling of tests. Procedure shall be as determined at a pre-construction meeting between the Contracting Officer, the Contractor and the testing laboratory representative.

- (a) When tests or inspections cannot be performed after such notice, reimburse the Government for laboratory personnel and travel expenses incurred due to the Contractor's negligence.
- 12. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory, approved by the Government, to perform additional inspections, sampling and testing required:
  - (a) for the Contractor's convenience.
  - (b) when initial tests indicate that work does not comply with contract documents.
- B. Retest Responsibility: Where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance of related work with the requirements of the contract documents, then retests are the responsibility of the Contractor, regardless of whether the original test was the Contractor's responsibility. Retesting of work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original work.
- C. Responsibility for Associated Services: The Contractor is required to cooperate with the independent agencies performing required inspections, tests and similar services. Provide such auxiliary services as are reasonably requested. Notify the testing agency sufficiently in advance of operations to permit assignment of personnel. These auxiliary services include, but are not necessarily limited to, the following:
  - 1. Providing access to the work
  - 2. Taking samples or providing assistance with taking samples
  - 3. Delivery of samples to test laboratories
  - 4. Security and protection of samples and test equipment at the project site
- D. Coordination: The Contractor and each independent agency engaged to perform inspections, tests and similar services for the project shall coordinate the sequence of their activities so as to accommodate required services with a minimum of delay in the progress of the work. In addition, the Contractor and each independent testing agency shall coordinate their work so as to avoid the necessity of removing and replacing work to accommodate inspection and tests. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

#### 1.4 SCHEDULE OF SERVICES

- A. Schedule of Inspection and Tests: Submit a schedule of inspections, tests and similar services required by the contract documents within thirty (30) days of the date of the notice to proceed. The schedule shall be in tabular form and shall include, but not be limited to, the following data:
  - 1. Reference to specification section number and unit of work
  - 2. Description of test
  - 3. Identification of applicable standards and test methods
  - 4. Number of tests required
  - 5. Time schedule or time span for tests
  - 6. Entity responsible for performing tests
  - 7. Requirements for taking samples

8. Unique characteristics of each service
- B. Schedule of Inspections and Tests: A schedule of principal inspection, tests and similar services as required by the contract documents is included at the end of this section.

## 1.5 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Except as otherwise indicated, engage inspection and test service agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which are recognized in the industry as specialized in the types of inspections and tests to be performed. Testing laboratories shall also meet the following requirements:
  1. Meet basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".
  2. Authorized to operate in the state, city and town in which the project is located.
  3. Submit a copy of the inspection report of the facilities made by the Material Reference Laboratory of the National Bureau of Standards during the most recent tour of inspection, with a memorandum of remedies of any deficiencies reported by the inspection.
  4. Testing Equipment:
    - (a) Calibrated at reasonable intervals by devices of accuracy traceable to either:
      - (1) the National Bureau of Standards, or
      - (2) accepted values of natural physical constants.
- B. Guarantees
  1. Unless otherwise provided in these specifications, the Contractor guarantees all work to be in accordance with contract requirements and free from defective or inferior materials, equipment, and workmanship which, in his opinion, are inferior, defective, or not in accordance with the terms of the contract, he will so inform the Contractor in writing and the Contractor shall promptly and without additional expense to the Government:
  2. If, within any guarantee, the Contracting Officer finds that quarantined work needs to be repaired or changed because of the use of materials, equipment, or workmanship which, in his opinion, are inferior, defective, or not in accordance with the terms of the contract, he will so inform the Contractor in writing and the Contractor shall promptly and without additional expense to the Government:
    - a) Place in a satisfactory condition all of such guaranteed work.
    - b) Satisfactorily correct all damages to equipment, the site, the building, or contents thereof, which is the result of such unsatisfactory guaranteed work; and
    - c) Satisfactorily correct any work, materials, and equipment that are disturbed in fulfilling the guarantee, including any disturbed work, materials, and equipment that may have been guaranteed under another contract.



- d) Should the Contractor fail to proceed promptly in accordance with the guarantee, the Government may have such work performed at the expense of the Contractor.
- 3. Any special guarantees that may be required under the contract shall be subject to the stipulations set forth herein, insofar as they do not conflict with the provisions of such special guarantees.
- 4. The Contractor shall obtain each transferable guarantee of equipment, materials, or installation thereof which is furnished by any manufacturer, supplier, or installer. In addition, the Contractor shall obtain and furnish to the Government all information which is required in order to make any such guarantee legally binding and effective, and shall submit both the information and the guarantee to the Government in sufficient time to permit the Government to meet any time limit requirements specified in the guarantee or, if no time limit is specified, prior to completion and acceptance of all work under this contract.

#### **1.6 LABORATORY DUTIES**

- A. Cooperate with the Contracting Officer and Contractor: Provide qualified personnel after due notice.
- B. Notify the Contracting Officer promptly after review of Contractor's proposed design mix for concrete and other material mixes which require control by the testing laboratory so that the Contracting Officer can approve, disapprove or modify them.
- C. Secure adequate quantities of representational samples of materials proposed to be used and which require testing. Furnish incidental labor and facilities to obtain and handle samples at the project site or at the source of the product to be tested.
- D. Perform specified inspections, sampling and testing of materials and methods of construction:
  - 1. Comply with specified standards.
  - 2. Ascertain compliance of materials with requirements of contract documents.
- E. Promptly notify the Contracting Officer and the Contractor of observed irregularities or deficiencies of work or products.
- F. Work will be checked as it progresses. Failure to detect defective work or materials shall in no way prevent later rejection when such defect is discovered. Failure to detect defective work shall not obligate the Contracting Officer for final review.
- G. Promptly submit a typed or legibly printed report of each test and inspection. Distribution of reports shall be determined at a pre-construction meeting between the Contracting Officer, the Contractor and a representative of the testing laboratory. Each report shall include:
  - 1. Date issued
  - 2. Project title and number
  - 3. Testing laboratory name, address and telephone number
  - 4. Name and signature of laboratory inspector
  - 5. Date and time of sampling or inspection
  - 6. Record of temperature and weather conditions
  - 7. Date of test
  - 8. Identification of product and specification section

9. Location of sample or test in the project
  10. Type of inspection or test
  11. Results of tests and compliance with contract documents
  12. Interpretation of test results, when requested by the Contracting Officer
- H. Perform additional tests as required by the Contracting Officer if there is cause for concern that a particular material may not comply with contract document requirements.

### **1.7 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY**

- A. The laboratory is not authorized to:
1. release, revoke, alter or enlarge upon requirements of the contract documents.
  2. approve or accept any portion of the work.
  3. perform any duties of the Contractor.

## **PART 2 -- PRODUCTS**

**NOT APPLICABLE**

## **PART 3 -- EXECUTION**

### **3.1 REPAIR AND PROTECTION**

- A. General: Upon completion of inspection, testing, sample-taking and similar services performed on the work, repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed finishes. Comply with the contract document requirements for "cutting and patching". Protect work exposed by or for quality control service activities, and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

**END OF SECTION**

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. This section specifies administrative and procedural requirements for temporary services and facilities, including such items as temporary utility services, temporary construction and support facilities, and project security and protection.
- B. Temporary utility services required for use at the project site include, but are not limited to, the following:
  - 1. Water service and distribution
  - 2. Temporary electric power and light
  - 3. Storm and sanitary sewer
- C. Temporary construction and support facilities required for the project include, but are not limited to, the following:
  - 1. Temporary heat
  - 2. Field offices and storage sheds
  - 3. Temporary roads and paving
  - 4. Sanitary facilities, including drinking water
  - 5. Dewatering facilities and drains
  - 6. Temporary enclosures
  - 7. Hoists
  - 8. Waste disposal services
  - 9. Rodent and pest control
  - 10. Construction aids and miscellaneous general services and facilities

- D. Security and protection facilities and services required for the project include, but are not limited to, the following:
1. Temporary fire protection
  2. Barricades, warning signs, lights
  3. Enclosure fence for the site
  4. Environmental protection

### 1.3 QUALITY ASSURANCE

- A. Regulations: Comply with the requirements of local laws and regulations governing construction and local industry standards in the installation and maintenance of temporary services and facilities including, but not limited to, the following:
1. Building codes, including local requirements for permits, testing and inspection
  2. Health and safety regulations
  3. Utility company regulations and recommendations governing temporary utility services
  4. Police, Fire Department and Rescue Squad rules and recommendations
  5. Environmental protection regulations governing use of water and energy, and the control of dust, noise and other nuisances.
  6. In addition, comply with “Environmental Impact” commitments the Owner or previous owners of the site may have made to secure approval to proceed with construction of the project.
- B. Standards: Comply with the requirements of NFPA Code 241, “Building Construction and Demolition Operations”, the ANSI-AIO Series standards for “Safety Requirements for Construction and Demolition”, and the NECA Electrical Design Library “Temporary Electrical Facilities”.
1. Refer to “Guidelines for Bid Conditions for Temporary Job Utilities and Services”, as prepared jointly by AGC and ASC for industry recommendations.
- C. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

- D. Inspections: Inspect and test each service before placing temporary utilities in use. Arrange for required inspections and tests by governing authorities, and obtain required certifications and permits for use.

## **1.4 SUBMITTALS**

- A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities. Reports and permits required for installation, use and operation of temporary utility services include, but are not limited to, the following:
  - 1. Temporary heat
  - 2. Ventilation
  - 3. Temporary electric power and light

## **1.5 PROJECT CONDITIONS**

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

## **PART 2 -- PRODUCTS**

### **2.1 MATERIALS**

- A. General: Provide new materials for temporary services and facilities; used materials that are undamaged and in serviceable condition may be used, if acceptable to the Contracting Officer. Provide only materials that are recognized as being suitable for the intended use, by compliance with appropriate standards.
- B. Lumber and Plywood: Comply with requirements in the "Rough Carpentry" section of Division 6.
  - 1. For signs and directory boards, provide exterior type, grade B-B, high-density concrete form overlay plywood of sizes and thickness which comply to PS-1.
- C. Paint: Comply with requirements in the "Finish Painting" section of Division 9.
  - 1. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.

- D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with a flame-spread rating of fifteen (15) or less. For temporary enclosures, provide translucent nylon-reinforced, laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- E. Water: Provide potable water approved by local health authorities.
- F. Open-Mesh Fencing: Provide eleven-gauge, galvanized, two-inch chain link fabric fencing, six (6) feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2 inch I.D. for line posts and 2-1/2 inch I.D. for corner posts.

## 2.2 EQUIPMENT

- A. General: Provide new equipment. If acceptable to the Contracting Officer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for the use intended.
- B. Water Hoses: Provide 3/4 inch heavy-duty, abrasion-resistant, flexible rubber hoses, one hundred (100) feet long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords; use "hand-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture..
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.
- G. Temporary Offices: Provide prefabricated or mobile units with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation or combustion type, properly vented and fully enclosed with a glass fiber-reinforced polyester shell or similar nonabsorbent material.
- I. First Aid Supplies: Comply with governing regulations.
- J. Fire Extinguishers: Provide hand-carried, portable, UL-rated, class “A” fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, class “ABC” dry chemical extinguishers, or a combination of extinguisher of NFPA recommended classes for the exposure.
  - 1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

## **PART 3 -- EXECUTION**

### **3.1 INSTALLATION**

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the utility company’s recommendation.
  - 1. Arrange with the utility company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Where the Owner’s easements cannot be used, obtain easements to bring temporary utilities to the site.

- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping prior to use.
1. Contractor shall make connections to existing facilities. Owner will pay costs of water used.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity and power characteristics during the construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters and main distribution switch gear.
1. Provide connections to existing facilities. Size of service shall be as needed for power and lighting requirements. Owner will pay the costs of power used.
  2. Except where overhead service must be used, install electric power service underground.
  3. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 volts, AC 20 ampere rating, and lighting circuits may be non-metallic, sheathed cable where overhead and exposed for surveillance.
    - (a) For power hand tools and task lighting, provide temporary four-gang outlets at each floor level, spaced so that a 100-foot extension cord can reach each area of work. Provide a separate 110-120 volt, 20 ampere circuit for each four-gang outlet (four outlets per circuit).
    - (b) Provide power for motors to a maximum of one-half (1/2) horsepower only.
    - (c) No temporary power will be provided for hoisting, welding or compressor equipment.
- D. Temporary Lighting: Where overhead floor or roof deck has been installed, provide temporary lighting with local switching.
1. Provide not less than one 200-watt incandescent lamp per one thousand (1,000) square feet of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas, provide one (1) 100-watt incandescent lamp every fifty (50) feet. In stairways and at ladder runs, provide a minimum of one (1) lamp per story, located to illuminate each landing and flight.
  2. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system.



3. Install and maintain the wiring to the field office of the Contractor and the project representative.
- E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period.
1. Install telephone on a separate line for each temporary office and first-aid station. Where an office has more than two (2) occupants, install a telephone for each additional occupant or pair of occupants.
  2. Install a pay telephone station at a convenient grade level location for the convenience of personnel at the site.
  3. At each telephone location, post a list of important telephone numbers, including the following:
    - (a) Local police and fire department
    - (b) Doctor
    - (c) Ambulance service
    - (d) Contractor's home office
    - (e) Contracting Officer's home office
    - (f) Principal Subcontractor's home office
  4. Pay all costs for installation, maintenance, removal and service charges for local calls. Toll charges shall be paid by the party who places the call.
- F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.
1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.
  2. Connect temporary sewers to the municipal system as directed by the sewer department officials.
  3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

4. Provide earthen embankments and similar barrier in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

### **3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION**

- A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.
  1. Maintain temporary construction and support facilities until near substantial completion. Remove prior to substantial completion. Personnel remaining after substantial completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimized consumption of energy.
  1. Maintain a minimum temperature of sixty (60) degrees Fahrenheit in permanently enclosed portions of the building and areas where finished work has been installed.
  2. Provide connections to existing facilities, extend and supplement with temporary units as required to comply with requirements. Pay all costs of installation, maintenance, operation and removal. Owner will pay costs of fuel used from the existing system.
- C. Heating Facilities: With the exception of where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
  1. Use of gasoline-burning space heaters, open flame or salamander-type heating units is prohibited.
  2. When a permanent heating system is available, the Contractor shall furnish and pay for incidental labor and materials, as well as for fuel consumed, and shall pay to have heating equipment cleaned, serviced and otherwise restored to like-new condition.
- D. Field Offices

1. Provide weatherproof office space, in the form of a building or trailer, for the exclusive use of the government's project representative and the Contracting Officer, when specifically instructed to do so in Section C, Statement of Work, of the contract. Furnish and equip office with the following:
  - (a) Light-colored, resilient floor covering material and painted drywall wall and ceiling finishes.
  - (b) Operable windows equipped with adjustable blinds and insect screens.
  - (c) A vented space heater, capable of maintaining a uniform indoor temperature of sixty-eight (68) degrees Fahrenheit (twenty (20) degrees Celsius), and an air conditioning unit capable of maintaining a maximum indoor temperature of seventy-two (72) degrees Fahrenheit (twenty-four (24) degrees Celsius).
  - (d) Switch controlled fluorescent light fixtures capable of maintaining average illumination of twenty-foot candles at desk height, and 110-120 volt duplex outlets spaced at twelve-inch intervals, with a minimum of one per wall per room. Also, furnish adequate exterior lighting.
  - (e) Plan table (as wide as the drawings and twice as long)
  - (f) Plan rack or file
  - (g) Desk (approximately thirty (30) inches by forty-two (42) inches)
  - (h) Three (3) chairs
  - (i) Four (4)-drawer file cabinet (each drawer approximately twelve (12) inches high by twelve (12) inches wide by twenty-four (24) inches deep)
  - (j) Three (3) shelves for sample storage (approximately twelve (12) inches by forty-eight (48) inches)
  - (k) Telephone (not a pay telephone) for project-related calls
  - (l) Costs of heat, air conditioning and telephone shall be borne by Contractor.
2. Provide suitable office space, in the form of a building or trailer, for project superintendent. Include items required for project representative's office and, at the option of the Contractor, additional facilities.
3. As construction progresses, field offices may be transferred to within the building only upon the approval of the Contracting Officer.
4. Field offices shall be maintained in a clean condition.

- E. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site.
- F. Temporary Paving: Construct and maintain temporary roads and paving to adequately support the indicated loading and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Construction Officer.
  - 1. Paving: Comply with the “Bituminous Paving” section of Division 2 for construction and maintenance of temporary paving.
  - 2. Coordinate temporary paving development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
  - 3. Install temporary paving to minimize the need to rework the installations and to result in permanent roads and paved areas that are without damage or deterioration when occupied by the Owner.
  - 4. Delay installation of the final course of permanent bituminous paving until immediately before substantial completion. Coordinate with weather conditions to avoid unsatisfactory results.
  - 5. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration and supervision.
- G. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project’s needs.
  - 1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
  - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
  - 3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a health and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

- (a) Provide safety showers, eye-wash fountains and similar facilities for convenience, safety and sanitation of personnel.
- 4. Drinking Water Fixtures: Provide drinking water fountains where indicated, including paper supply.
  - (a) Where power is accessible, provide electric water coolers to maintain dispensed water temperature at forty-five (45) to fifty-five (55) degrees Fahrenheit (seven (7) to thirteen (13) degrees Celsius).
- H. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual sections of the contract documents, comply with dewatering requirements of applicable Division 2 sections. Where feasible, utilize the same facilities. Maintain the site, excavations and construction free of water.
- I. Temporary Enclosures: Provide temporary enclosure for protection of both construction in progress and completed construction from exposure, foul weather, other construction operations and similar activities.
  - 1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  - 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of twenty-five (25) square feet or less with plywood or similar materials.
  - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
- J. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered “tools and equipment” and not temporary facilities.
- K. Temporary Exterior Lighting: Install exterior yard and sign lights so that signs are visible when work is being performed.
- L. Collection and Disposal of Waste: Collect waste from construction areas, and elsewhere, daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven days during normal weather or three days when the temperature is expected to rise above eighty (80) degrees Fahrenheit (twenty-seven (27) degrees Celsius). Handle hazardous, dangerous or unsanitary waste materials separately from other waste by containing properly. Dispose of material in a lawful manner.

1. Burying or burning of waste materials on the site will not be permitted.
  2. Washing waste materials down sewers or into waterways will not be permitted.
  3. Provide rodent-proof containers located on each floor level of construction work to encourage depositing of garbage and similar wastes by construction personnel.
- M. Rodent and Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches and other pests. Employ this service to perform extermination and control procedures at regular intervals so the project will be relatively free of pests and their residues at substantial completion. Perform control operations in a lawful manner using environmentally safe materials.
- N. Construction Aids and Miscellaneous Services and Facilities: Design, construct and maintain construction aids and miscellaneous general services and facilities as needed to accommodate performance of the work. Construction aids and miscellaneous general services and facilities include, but are not limited to, the following:
1. Scaffolding and Staging: Contractor shall furnish, erect, maintain, dismantle and remove all staging and scaffolding, both exterior and interior, for his use and the use of all subcontractors working on the project. All staging shall conform to federal, state and local requirements.

### **3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION**

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until substantial completion, or longer, as requested by the Contracting Officer.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, "Standard for Portable Fire Extinguishers", and NFPA 241, "Standard for Safeguarding Construction, Alterations and Demolition Operations".
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one (1) extinguisher per floor at or near each usable stairwell.
  2. Store combustible materials in containers in fire-safe locations.
  3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

4. Provide supervision of welding operations, combustion-type temporary heating units and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and necessary, provide lighting, including flashing red or amber lights.
- E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs and other animals from easily entering the site, except by the entrance gates.
  1. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.
- F. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

### **3.5 OPERATION, TERMINATION AND REMOVAL**

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a twenty-four (24) hour day basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Unless the Contracting Officer requests that it be maintained longer, remove each temporary facility when the need has ended or when replaced by authorized use of a permanent facility, or no later than "Substantial

Completion”. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserve the right to take possession of project identification signs.
2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.
3. At “substantial completion”, clean and renovate permanent facilities that have been used during the construction period including, but not limited to:
  - (a) Replace air filters, and clean inside of ductwork and housings.
  - (b) Replace significantly worn parts and parts that have been subject to unusual operating conditions.
  - (c) Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

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**END OF SECTION**



1.0 GENERAL1.1 APPLICABLE PUBLICATIONS:

A.

1.2 DEFINITIONS OF CONTAMINANTS:

- A. Sediment: Soil and other debris that has been eroded and transported by runoff water.
- B. Solid Waste: Rubbish, debris, garbage, and other discarded soil materials resulting from industrial, commercial and agricultural operations, and from community activities.
- C. Rubbish: A variety of combustible and non-combustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.
- D. Debris: Includes combustible and non-combustible wastes such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
- E. Chemical Wastes: Includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.
- F. Sewage: Wastes characterized as domestic sanitary sewage.
- G. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.
- H. Oily Waste: Includes petroleum products and bituminous materials.

1.3 SUBMITTALS:

- A. Solid Waste Disposal Permit: Submit one (1) copy of State and local permit or license which reflects such agency's approval of the disposal plan as being in compliance with their solid waste disposal regulations.

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS:

- A. Provide and maintain during the life of the contract, environmental protection as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice. Provide also environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with all Federal, State, and local regulations pertaining to water, air and noise pollution.

2.0 NOT APPLICABLE3.0 EXECUTION3.1 HAZARDOUS MATERIAL USAGE:

- A. The contractor shall establish a hazardous material (HM) storage and distribution system when HM is to be used. All HM required to support the contract shall be reported to the Hazardous Material Pharmacy (HMP) using the Contractor HM Identification Form. The Form may be altered to enhance tracking. The Contractor HM Identification Form will be provided to the contractor at or prior to the Pre-Construction meeting. Additional HM needed by the contractor shall be identified to the Contracting Officer's Representative for approval by the HMP. (See Attachment 1.)

- B. The contractor planning to use HM for the work shall register with the installation HMP prior to start of work in order to support the installation's compliance with Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements.
- C. The contractor shall maintain a Contractor HM Identification Form for all HM on the job site for inspection/verification.
- D. The COR will verify that the HM identified to the HMP is the only HM in use on the job site.
- E. The contractor shall provide the following to the HMP:
  - 1. Provide a list of each material and quantity of material for all proposed HM. Hazardous Material (HM) shall be construed to mean any item that is:
    - A health hazard or physical hazard as defined in 29 CFR, 1910.1200(c).
    - Regulated in its disposal by EPA under 40 CFR.
    - Hazardous as defined by DOT regulations under 49 CFR.
    - Hazardous as defined by the Dangerous Goods Regulations of the International Air Transport Association.
  - 2. Provide a material safety data sheet (MSDS) for each item on the HM list.
  - 3. Typical examples of hazardous materials used on the job site include, but are not limited to:
    - petroleum based liquids/gases (gasoline, kerosene, diesel, propane, butane, acetylene, etc.)
    - explosives
    - adhesives and glues
    - shot charges for anchor systems
    - volatile solvents (such as PVC cleaner and glues, paint thinners)
    - non-water-based paints
    - liquid sealants
    - epoxies and coating systems
    - acidic or alkali cleaners
- F. The contractor shall establish a construction-specific HM storage and issue location that fully complies with federal, state and local environmental regulations. Materials issued shall be tracked for quantities used. Unused materials shall be inventoried and removed from the ANG installation prior to close-out of the contract or expiration date of the HM. Reports of materials delivered, used and removed from the installation shall be submitted to the Contracting Officer monthly and prior to contract close-out.
- G. The contractor shall comply with all federal, state and local environmental standards.
- H. The contractor shall accompany the contracting officer's representative (COR) and the installation Environmental Manager (EM) on project close-out inspection to ensure all used and unused HM has been removed from the installation. This requirement shall not be a punch list item and must be accomplished prior to the government accepting beneficial occupancy of the facility or construction item. (See Attachment 2.)

### 3.2 PROTECTION OF NATURAL RESOURCES:

- A. The natural resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their existing conditions or restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the work schedule, drawings, and specifications.

1. Land Resources: Except in areas indicated to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without special permission from the Contracting Officer. Do not fasten or attach ropes, cables, or guys to any existing nearby trees for anchorages unless specifically authorized. Where such special emergency use is authorized, the Contractor shall be responsible for any resultant damage.
  - a. Protection: Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.
  - b. Repair or Restoration: Repair or restore to their original condition, all trees or other landscape features scarred or damaged by the equipment or operations. Obtain approval of the repair or restoration from the Contracting Officer prior to its initiation.
  - c. Temporary Construction: Obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations or temporary structures, stockpiles of excess or waste materials, and all other vestiges of construction. Temporary roads, parking areas, and similar temporary use areas shall be graded in conformance with surrounding areas, tilled and seeded. Include topsoil or nutrient during the seeding operation as necessary to obtain a suitable stand of grass.
2. Water Resources: Perform all work in such a manner that any adverse environmental impact on water resources is reduced to a level acceptable to the Contracting Officer.
  - a. Oily Substances: Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Surround all temporary fuel oil, petroleum or liquid chemical storage tanks with a temporary earth berm of sufficient size and strength to contain the contents of the tank in the event of content leakage or spillage.

### 3.3 EROSION AND SEDIMENT CONTROL MEASURES:

- A. Burn Off: Burn off of ground cover is not permitted.
- B. Borrow Pit Areas: Manage and control borrow pit areas to prevent sediment from entering nearby streams or lakes. Restore areas, including those outside borrow pit disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil and establishment of permanent vegetative cover. Uniformly grade side slopes of borrow pit to a slope of thirty (30) degrees or less with the horizontal. Uniformly grade bottom of bottom of borrow pits to provide a flat bottom, and drain by outfall ditches or other suitable means.
- C. Protection of Erodible Soils: All earthwork brought to final grade shall be immediately furnished as indicated or specified. Protect immediately side slopes and backslopes upon completion of rough grading. Plan and conduct all earth work in such a manner as to minimize the duration of exposure of unprotected soils.
- D. Temporary Protection of Erodible Soils: Utilize the following methods to prevent erosion and control sedimentation.
  1. Mechanical Retardation and Control of Runoff: Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches and berms to retard and divert runoff to protected drainage courses.
  2. Borrow: Not permitted in areas where suitable environmental controls are not possible.
  3. Vegetation and Mulch: Provide temporary protection on all side and back slopes as soon as rough grading is completed and sufficient soil is exposed to require protection to prevent erosion. Such

protection shall be by accelerated growth of permanent vegetation, temporary vegetation, mulching or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

### 3.4 CONTROL AND DISPOSAL OF SOLID, CHEMICAL AND SANITARY WASTES:

- A. Pick up solid wastes and place in containers which are emptied on a regular schedule. The preparation, cooking, and disposing of food are strictly prohibited on the project site. Conduct handling and disposal of wastes to prevent contamination of the site and other areas. On completion, leave areas clean and natural looking. Obliterate signs of temporary construction and activities incidental to construction of the permanent work in place.
1. Disposal of Garbage, Rubbish, and Debris: Remove garbage, rubbish, and debris from Government property and dispose of it in compliance with Federal, State, and local requirements.
  2. Sewage, Odor, and Pest Control: Dispose of sewage through connection to station sanitary sewage system. Where such system is not available, use chemical toilets or comparably effective units and periodically empty wastes into station sanitary sewage systems. Include provisions for pest control and elimination of odors.
  3. Chemical Waste: Store chemical waste in corrosion resistant containers labeled to identify the type of waste and date filled. Remove containers from the project site and dispose of chemical waste in accordance with Federal, State, and local regulations, notify the Contracting Officer immediately. Waste products that are regulated for disposal as either EPA hazardous waste or Connecticut regulated waste must be shipped off-site by a licensed transporter, and documented using a hazardous waste manifest. The Generator information for the manifest shall be obtained from the CTANG Environmental Management Office for Air National Guard facilities or the CTARNG Environmental Management Office for Army National Guard facilities.
  4. Petroleum Products: Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting Federal, State, and local regulations. Waste products that are regulated for disposal as either EPA hazardous waste or Connecticut regulated waste must be shipped off-site by a licensed transporter, and documented using a hazardous waste manifest. The Generator information for the manifest shall be obtained from the CTANG Environmental Management Office for Air National Guard facilities or the CTARNG Environmental Management Office for Army National Guard facilities.

### 3.5 DUST CONTROL:

- A. Keep dust down at all times, including non-working hours, weekends, and holidays. Sprinkle or treat with dust suppressors the soil at the site, haul roads, and other areas disturbed by operations. No dry power brooming is permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris such as steel reinforcing boards. No unnecessary shaking of bags is permitted where bagged cement, concrete mortar, and plaster is used.

### 3.6 NOISE:

- A. When available, make the maximum use of "low noise emission products" as certified by EPA. No blasting or use of explosives is permitted.

### 3.7 CONTAMINATED SOIL:

- A. Excavated soil that is contaminated shall be stockpiled at a location selected by the Contracting Officer. Soil shall be separated into two (2) types, contaminated and potentially clean and stockpiled into separate piles. Soil shall be stored on 6 to 20 mil plastic. Lab tests shall be performed to determine if soil is clean or dirty. Soil confirmed to be clean shall be reused as backfill. Soil confirmed to be contaminated shall be secured at its stockpiling location for a period of at least one (1) year, after which time it can be transported to a nearby landfill after proper permits have been obtained.

**3.8 HEALTH AND SAFETY PLAN:**

- A. Removal of underground storage tanks shall be in accordance with OSHA requirements. General Contractor shall submit a Health and Safety Plan to meet OSHA requirements.

**3.9 INSTALLATION RECYCLING PROGRAMS:**

- A. Contractor shall become familiar with, and comply with the Installation's recycling program.

**ATTACHMENT 1****Contractor Hazardous Material Identification Form**

Part I

Date: \_\_\_\_\_

This part is to be completed by Contractor prior to the construction start date, and shall be maintained on the job site.

Contractor Company: \_\_\_\_\_ (name)  
 Proposed work term: \_\_\_\_\_ (date) to \_\_\_\_\_ (date)  
 Contractor Point of Contact: \_\_\_\_\_ (full name or names, phone/cell/pager numbers,  
 Phone number: \_\_\_\_\_ emergency 24-hour contact number, etc.)

Submittal Information		Storage and Usage Information		
HM to be used: MFG./Product	MSDS Attached (Yes/No)	Amount on Site*, Transient or Stored	Amount Used Up in Process	Used or Unused Amount Removed from ANG installation

Note: This form is good for a one-month period and is to be submitted to the hazardous material pharmacy (HMP). All HM (hazardous material) used thereafter will be identified to the Contracting Officer's Representative for approval by the HMP. See Part II for contractor close-out procedures. The HMP phone number is (xxx) xxx-xxxx.

\* Transient amount reflects amount brought on site daily, but not stored overnight. Use separate lines for transient and storage amounts.

HMP Team Approval Signatures:

COR (Contracting Officer's Representative) \_\_\_\_\_

EM (Environmental Manager) \_\_\_\_\_

SGPB (Bio-environmental Engineer) \_\_\_\_\_

SE (Safety Officer) \_\_\_\_\_

***ATTACHMENT 2*****Contractor Hazardous Material Identification Form  
Close-Out Procedures**

## Part II

Attach this part to Part I

The Contractor shall accompany the Contracting Officer's Representative and the Environmental Manager on the close-out inspection to ensure all used and unused HM has been removed from the installation.

Close-out Approval Signatures:

SignatureDate

Contractor

---

Contracting Officer's Representative

---

EM (Environmental Manager)

---

**\*\*\* END OF SECTION \*\*\***

1.1 to 1.3 NOT USED

1.4 TRANSPORTATION AND HANDLING:

- A. Transport and handle products in accordance with manufacturer's instructions.

1.5 STORAGE AND PROTECTION:

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight climate controlled enclosures.
- B. For excessive storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.6 PRODUCT OPTIONS:

- A. Products specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.7 SUBSTITUTIONS:

- A. Contracting Officer will consider requests for Substitutions only within 15 days after contract award date.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the Substitution as for the specified product.



3. Will coordinate installation and make changes to other Work, which may be required for the work to be complete with no additional cost to Government.
  4. Waives claims for additional costs or time extension that may subsequently become apparent.
  5. Will reimburse Government for review or redesign services associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit three copies of request for Substitution of consideration. Limit each request to one proposed Substitution.
  2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
  3. The Contracting Officer will notify Contractor, in writing, of decision to accept or reject request.

PART2 -- PRODUCTS

Not Used

PART 3 -- EXECUTION

Not Used

\*\*\* END OF SECTION \*\*\*

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. Definitions: Project closeout is the term used to describe certain collective project requirements, indicating completion of the work, that are to be fulfilled near the end of the Contract time, in preparation for final acceptance and occupancy of the work by the Government, as well as final payment to the Contractor and the normal termination of the Contract.
  - 1. Specific requirements for individual units of work are included in the appropriate sections in Divisions 2 through 16.
  - 2. Time of closeout starts with the request for Pre-final (90%) Inspection: The contractor shall request, by letter to the Contracting Officer, a joint contractor/engineer inspection, when the contractor deems that 90% of the work is complete, and meets the prerequisites listed below.

**1.3 SUBMITTALS**

- A. Submit the following in accordance with Section 01300, "Submittal Procedures."
  - 1. As-built drawings
  - 2. Record of materials
  - 3. Utility as-built drawings
  - 4. Equipment/product extended warranties

**1.4 PREREQUISITES FOR PRE-FINAL (90%) INSPECTION**

- A. Record and Information Booklet: Prepare one (1) draft copy of the Record and Information Booklet for Contracting Officer's approval. Booklet shall be returned to the contractor, with comments. The contractor shall correct deficiencies, and submit three (3) copies of the "Final" Booklet, at the Final Inspection.
  - 1. Make-up Booklet: The booklet shall be bound in a three-ring loose-leaf binder titled "Record Information Booklet for (Project Name)". Sheets 8-1/2" x 11" shall be used except some sheets may be folded and used as pullouts. Booklet shall contain the following information:
    - a) List subcontractors, suppliers, and manufacturer's representatives by name, address, telephone number, and material installed or supplied.
    - b) List of material and equipment descriptions shall include model or type names, or numbers, color, and where used.
    - c) Catalog data on each piece of material or equipment.
    - d) Operation and Maintenance Manuals
    - e) List and draft copies of Specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

- B. "As-Built Drawings". In addition to the requirements of FAC 252.236-9310, the Contractor shall survey the horizontal and vertical location of all underground utilities to within 30 mm (0.1 feet) relative to the station datum. All pipe utilities shall be surveyed at each fitting and every 10 m (100 LF) of run length. Electrical and communication duct bank, direct buried conduit, and direct buried conductor shall be surveyed every 10 m (100 LF) and at each change of direction. Locations and elevations shall be recorded on the Record Drawings.
- C. Utility As-Built Drawings: In addition to as-built drawings provide for each exterior utility system a set of reproducible utility drawings. Submit within ten working days after each system is in place, but no later than five working days before final inspection. Indicate exterior utilities from a point five feet from a building to the termination point or point of connection to existing system. Include the following:
  1. Horizontal and vertical controls for new utilities and existing utilities exposed during construction. Reference to station's horizontal and vertical control system.
  2. Sufficient dimensional control for all important features such as beginning and termination points, points of connection, inverts for sewer lines and drainage collection systems, top of pipe or conduit runs, manholes, cathodic protection appurtenances, valves, valve stem tops, backflow preventers, and other significant features.
  3. Indicate type and size of all materials used in the construction of the system.
- D. Guarantees:
  1. Upon completion of the project and prior to final payment, guarantee required by technical division of Specifications shall be properly executed in duplicate and submitted to the Contracting Officer. Delivery of guarantee shall not relieve Contractor from any obligation assumed under the Contract.
  2. Submit guarantee covering entire project for one (1) year. In addition, where separate guarantees for certain portions of work are for longer periods, Contractor's guarantee and manufacturer's guarantee shall be extended to cover such longer periods.
  3. Guarantees shall become valid and operative upon issuances of Certificate of Substantial Completion by Contracting Officer. Guarantees shall not apply to work where damage is result of abuse, neglect by Owner or successor(s) in interest.
  4. This Section is intended as a guide only and shall not be construed as limiting closing requirements. Specific instructions and additional guarantees are specified in other portions of this Specification.
  5. Copies of Guarantee and Bonds:
    - a) Contractor's general one-year guarantee
    - b) Certificate for Acceptance and Final Payment
  6. The Contractor guarantees all work shown on the drawings and specified with any approved modifications, as follows.
    - a) Against faulty or imperfect materials or workmanship.
    - b) Work shall be entirely watertight and leak proof.

- c) All mechanical and electrical machines, devices, and equipment shall operate satisfactorily with any ordinary care and shall perform their specified or intended functions.
- d) Against damage or undue deterioration resulting from normal use of the building.
- 7. Contractor shall repair all masonry cracks occurring during the one-year guarantee period. Such surfaces shall be refinished to make contiguous work uniform and harmonious.
- 8. The Contractor shall replace, correct, or repair any work found to be imperfect, improper, not watertight, and leak proof, or which does not operate satisfactorily or perform as specified, at no expense to the Government.
- 9. In the event of such required correction, Contractor shall make good all damage to other work caused by such measures.
- 10. This guarantee covers a period of one year from date of acceptance by Government, as evidence by final payment, except where a longer period is stipulated.
- 11. Contractor shall also comply with all other guarantees stipulated elsewhere in the Specifications.
- 12. Neither final payment, final certificate, nor any provision of the Contract Documents relieves the Contractor from his responsibilities under this guarantee.
- 13. If at any time deficiencies in the work are discovered which result from a deliberate attempt to defraud the Government, the Contractor will be held liable for replacement or correction, regardless of the time limit on the guarantee.
- 14. If the Contractor, after notice, fails to proceed promptly to comply with the guarantee, the Government may have the defects corrected and the Contractor and his Surety shall be liable for all expense incurred.

#### E. EXTENDED EQUIPMENT/PRODUCT WARRANTIES

- 1. Equipment/Product Warranty List: Furnish to the Contracting Officer a bound and indexed notebook containing written warranties for equipment/products that have extended warranties (warranty periods exceeding the standard one-year warranty) furnished under the contract, and prepare a complete listing of such equipment/products. The equipment/products list shall state the specification section applicable to the equipment/product, duration of the warranty therefor, start date of the warranty, ending date of the warranty, and the point of contact for fulfillment of the warranty. The warranty period shall begin on the same date as project acceptance and shall continue for the full product warranty period. Execute the full list and deliver to the Contracting Officer prior to final acceptance of the facility.
- 2. Equipment Warranty Tags and Guarantor's Local Representative Furnish with each warranty the name, address, and telephone number of the guarantor's representative nearest to the location where the equipment and appliances are installed. The guarantor's representative, upon request of the station representative, shall honor the warranty during the warranty period, and shall provide the services prescribed by the terms of the warranty. At the time of installation, tag each item of warranted equipment with a durable, oil- and water-resistant tag approved by the Contracting Officer. Attach tag with

copper wire and spray with a clear silicone waterproof coating. Leave the date of acceptance and QC's signature blank until project is accepted for beneficial occupancy. Tag shall show the following information:

EQUIPMENT/PRODUCT EXTENDED WARRANTY TAG  
 Type of Equipment/Product \_\_\_\_\_  
 Warranty Period \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_  
 Contract No. \_\_\_\_\_  
 Inspector's Signature \_\_\_\_\_  
 Date Accepted \_\_\_\_\_  
 Construction Contractor:  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Warranty Contact: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Telephone: \_\_\_\_\_

- F. Deliver tools, spare parts, extra stocks of material and similar physical items to the Owner.
- G. Inspection Procedures: Upon receipt of the Contractor's request for inspection, the Contracting Officer will either proceed with inspection or advise the Contractor of unfilled prerequisites.
- H. Prior to final payment, upon substantial completion of the project and prior to acceptance by the Government, the Contracting Officer and his engineers shall make a "punch list" inspection. This shall not preclude compliance of work prior to final punch list inspection.
- I. Results of the completed inspection will form the initial "punch list" for final acceptance.

#### 1.4 PREREQUISITES FOR FINAL (100%) INSPECTION

- A. Prior to final inspection, the Contractor shall establish a date at which time all items of mechanical and other operating equipment shall be demonstrated to work for the instruction of the Government's operating personnel. Two (2) weeks prior to this date, the Contractor shall notify the Contracting Officer of same. The Contracting Officer shall then make arrangements with the Government to have all operating and maintenance personnel attend the aforementioned demonstration. Complete start-up testing of systems and instruction of the Owner's operating and maintenance personnel.
- C. Discontinue or change over and remove temporary facilities and services from the project site, along with construction tools and facilities, mock ups and similar elements.
- D. Complete final cleaning: touch-up painting, repair and restore marred surfaces. The entire buildings and all their parts shall be left free of dust, with surfaces free from marks, dirt, paint spatters or other blemishes. Remove and replace broken government property. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site.
- E. Submit a certified copy of the Contracting Officer's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and has been endorsed and dated by the Contracting Officer.

- F. Submit final meter readings for utilities, a measured record of stored fuel and similar data either as of the date of substantial completion or when the Government took possession of and responsibility for corresponding elements of the work.
- G. Submit consent of surety.
- H. Submit a final liquidated damages settlement statement, acceptable to the government.
- I. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- J. Submit record drawings, maintenance manuals, property survey and similar final record information.
- K. Re-inspection Procedure: The Contracting Officer will re-inspect the work upon receipt of the Contractor's notice that the work, including punch list items resulting from earlier inspections, has been completed, except for those items whose completion has been delayed because of circumstances that are acceptable to the Contracting Officer.
  - 1. Upon completion of re-inspection, the Contracting Officer will either prepare a certificate of final acceptance or will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.
  - 2. If necessary, the re-inspection procedure will be repeated.
- L. MECHANICAL TESTING AND BALANCING: All contract requirements of Sections 15000 shall be fully completed, including all testing, prior to contract completion date. The time required to complete all work and testing as prescribed is included in the allotted calendar days for completion.

**PART 2 -- PRODUCTS**

**NOT APPLICABLE**

**PART 3 -- EXECUTION**

**3.1 CLOSEOUT PROCEDURES**

- A. General Operating and Maintenance Instructions: Arrange for each installer of operating equipment and other work that requires regular or continuing maintenance to meet at the site with the Owner's personnel to provide necessary basic instruction in the proper operation and maintenance of the entire work. Where installers are not experienced in the required procedures, include instruction by the manufacturer's representatives.
  - 1. As part of this instruction, provide a detailed review of the following items:
    - (a) Maintenance manuals
    - (b) Record documents
    - (c) Spare parts and materials
    - (d) Tools
    - (e) Lubricants
    - (f) Fuels
    - (g) Identification systems
    - (h) Control sequences

- (i) Hazards
  - (j) Cleaning
  - (k) Warranties, bonds, maintenance agreements and similar continuing commitments
2. As part of this instruction for operating equipment, demonstrate the following procedures:
- (a) Start up
  - (b) Shut down
  - (c) Emergency operations
  - (d) Noise and vibration adjustments
  - (e) Safety procedures
  - (f) Economy and efficiency adjustments
  - (g) Effective energy utilization

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**END OF SECTION**

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. General: Special cleaning requirements for specific units of work are included in the appropriate sections of Divisions 2 through 16.
- B. Refer to the "Project Closeout" section for general closeout requirements.
- C. Refer to the "Temporary Facilities" section for general requirements on cleaning up and waste removal.
- D. Environmental Requirements: Conduct cleaning and waste disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.
  - 1. Do not dispose of volatile wastes, such as mineral spirits, oil or paint thinner, in storm or sanitary drains.
  - 2. Burning or burying of debris, rubbish or other waste material on the premises will not be permitted.

**PART 2 -- PRODUCTS****2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

**PART 3 -- EXECUTION****3.1 FINAL CLEANING**

- A. General: Provide final cleaning of the work at the time indicated below. Employ experienced workers or professional cleaners for final cleaning. Clean such surface or unit of work to the condition expected from a commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for cleaning operations.
- B. Complete the following cleaning operations before requesting the Contracting Officer's inspection for certification of substantial completion, either for the entire work or for a portion of the work:
  - 1. Remove labels which are not required as permanent labels.
  - 2. Clean transparent materials, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances which are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent material. Then polish mirrors and glass, taking care not to scratch the surfaces.
  - 3. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise



indicated, avoid disturbing the natural weathering of exterior surfaces. Restore reflective surfaces to their original reflective condition.

4. Touch up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces which cannot be satisfactorily repaired or restored, or which show visible evidence of repair or restoration. Do not paint over UL and similar labels, including mechanical and electrical "boiler plates".
  5. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.
  6. Broom clean concrete floors in unoccupied spaces.
  7. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo carpet if required.
  8. Wipe surfaces of mechanical and electrical equipment clean, including elevator equipment and similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
  9. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  10. Replace air filters, and clean the inside of ductwork and housings.
  11. Clean food service equipment to a sanitary condition, ready and acceptable for its intended food service use.
  12. Clean light fixtures and lamps so as to function with full efficiency. Replace burned out bulbs.
  13. Clean the project site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition. Remove stains, petrochemical spills and other foreign deposits. Rake grounds that are neither planed nor paved to a smooth, even-textured surface.
  14. Remove all waste materials, rubbish, tools, construction equipment, machinery and surplus material from the site.
  15. Remove snow and ice to provide safe access to the building.
  16. Leave the project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed or bonded exterminator to make a final inspection of the project and to rid the project of rodents, insects and other pests. Comply with regulations of local authorities having jurisdiction.
- D. Removal of Protection: Except as otherwise indicates or requested by the Contracting Officer, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction period.

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**END OF SECTION**

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. Definitions: Record documents indicate changes in the work in relation to the way in which the work was shown and specified in the original contract documents. Individual sections of Division 2 through 16 indicate specific project record document requirements that extend the general requirements of this section.
  - 1. Project record documents include those documents or copies of documents that relate directly to performance of the work and that the Contractor is required to prepare or maintain for the Government's records, by recording the work actually performed. Record documents may include the following:
    - (a) Newly prepared drawings (if specified)
    - (b) Marked up copies of contract drawings and shop drawings
    - (c) Marked up copies of specifications, addenda and change orders
    - (d) Marked up product data submittals
    - (e) Record samples
    - (f) Field records for variable and concealed conditions, such as excavations and foundations
    - (g) Miscellaneous record information on work which is otherwise recorded only schematically or not at all
- B. Refer to "Project Closeout" section for general closeout requirements.

**1.3 RECORD DOCUMENT PROCEDURES**

- A. Record Drawings
  - 1. Mark up Procedure: During the progress of the work, maintain a set of either blue-line or black-line white-prints of both contract drawings and shop drawings for project record document purposes. Mark up these drawings showing the actual installation. Give particular attention to information on concealed work which might be difficult to identify or measure and record at a later date, and to recording the horizontal and vertical locations of all buried utilities. Mark up important additional information that was either shown schematically or omitted from the original drawings. Note field order numbers, alternate numbers, change order numbers and similar identification on the record drawings, where applicable.
    - (a) Mark completely and accurately, record prints: both contract drawings and shop drawings. Mark drawings with erasable colored pencil, using separate colors where it is feasible to distinguish between changes for different categories of work at the same general location. Where shop drawings are marked up for record purposes, make a cross-reference on the contract drawings at the corresponding location. Require each person preparing the mark up to initial and date the mark up and to indicate the name of the responsible firm.
  - 3. Preparation of "As-Built" Drawings: Upon completion of the work, the Contractor shall submit to the COR for review the project record prints. The COR will return the reviewed project record prints to the Contractor, and the Contractor shall make all changes necessary to produce a set of

“As-Built” drawings. The drawings shall be dated and labeled “As-Built Drawings” and then resubmitted to the Contracting Officer for final review.

B. Record Specifications:

1. General: During the progress of the work, maintain one copy of the specifications including addenda, change orders and similar modifications issued in printed form during construction for record document purposes. Mark up these specifications to indicate the actual work. Give particular attention to substitutions, field orders, selection of options and similar information on Work where it is concealed or cannot be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark up, submit the record specifications to the COR.
  - (a) In each specification section, wherever products, materials or units of equipment are specified or scheduled, mark the record specification copy with the proprietary name and model number of the product furnished. In addition, record the name of the manufacturer, supplier and other significant identification so as to provide a record of the selections made and documented coordination with record product data submittals and maintenance manuals.
    - (1) For each specified product, note in the record specification copy if record product data has been submitted in maintenance manuals in lieu of being submitted as record product data.
  - (b) Where feasible, mark variations from specified requirements on the blank left-hand pages of the project manuals, opposite the printed right-hand page containing the original text affected by the change.

C. Record Product Data

1. General: During the progress of the work, maintain one copy of each product data submittal for record document purposes. Mark up these submittals to indicate the actual work. Include changes to the product as delivered to the site and variations from the manufacturer’s instructions and recommendations for installation. Give particular attention to products that will be concealed and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders, field orders and mark up of record drawings, where applicable. Upon completion of the mark up, submit a complete set of record product data to the Contracting Officer’s representative for the Owner’s records.
  - (a) Where record product data is required as a part of maintenance manuals, submit the marked up product data as an insert in the maintenance manual, in lieu of submittal as record product data.

D. Record Sample Submittal

1. General: Immediately prior to the date of substantial completion, the Contractor shall meet with the COR, to determine which samples maintained by the Contractor during the progress of the work, are to be transmitted to the Government for record purposes. Comply with the COR’s instructions for packaging, identification marking and delivery to the COR. Unless otherwise indicated or directed by the COR, dispose of other samples in the manner specified for the disposal of surplus and waste materials.

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END OF SECTION

**PART I -- GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 1 specification sections, apply to work of this section.

**1.2 DESCRIPTION OF REQUIREMENTS**

- A. General: This section specifies administrative and procedural requirements necessary for the preparation and submittal of operation and maintenance manuals for the various building operating systems or equipment. This section also includes administrative and procedural requirements for the instruction of the Government's operating personnel in the operation and maintenance of the building systems and equipment.
  - 1. Special operating and maintenance data requirements for specific pieces of equipment or building operating systems are included in the appropriate sections of Divisions 2 through 16.
- B. Refer to the "Project Closeout" section for general closeout requirements.
- C. Refer to the "Shop Drawings, Product Data and Samples" section for general requirements for the preparation of shop drawings and product data.
- D. Refer to the "Project Record Documents" section for requirements for project record document submittals.
- E. Definitions: "Operating and Maintenance Manuals" are manuals specially prepared for the Government and the Government's personnel. These manuals contain information necessary for the safe and efficient operation and maintenance of building equipment and operating systems.
  - 1. In each manual, include the information specified in the individual specification section, and except as otherwise indicated, include the following information for each major component of building equipment and its controls, as applicable:
    - (a) General system or equipment description
    - (b) Design factors and assumptions
    - (c) Copies of applicable shop drawings and product data
    - (d) System equipment identification, including name of manufacturer, model number and serial number of each component
    - (e) Operating instructions
    - (f) Emergency instructions
    - (g) Wiring diagrams
    - (h) Inspection and test procedures
    - (i) Maintenance instructions and procedures
    - (j) Precautions against improper use and maintenance
    - (k) Copies of warranties

- (l) Repair instructions, including spare parts listing
- (m) Names and addresses of sources of required maintenance materials and related services
- (n) Manual index
- (o) Test reports
- (p) Manufacturer's parts list for each piece of equipment
- (q) Service contracts
- (r) Government's letter confirming receipt and understanding of operation and maintenance instructions

### 1.3 QUALITY ASSURANCE

- A. Maintenance Manual Preparation: In the preparation of maintenance manuals, use only personnel who are thoroughly trained and experienced in the operation and maintenance of the equipment or system involved.
  - 1. Where written instruction are required, use personnel skilled in technical writing to the extent necessary for the communication of essential data.
  - 2. Where drawings or diagrams are required, use skilled draftsmen who are capable of preparing the required drawings clearly in an easily understandable format.
- B. Instructions for the Government's Personnel: For the instruction of the Government's operating and maintenance personnel, use only experienced instructors who are thoroughly trained and experienced in the operation and maintenance of the building equipment or systems involved.

### 1.4 SUBMITTALS

- A. Submittal Schedule: Submit operating and maintenance manuals at the time of final acceptance and project closeout.
- B. Form of Submittal: Prepare operating and maintenance manuals in the form of an instructional manual for use by the Government's operating personnel. Organize operating and maintenance data into suitable sets of manageable size. Where possible, assemble instructions for like equipment into a single binder.
  - 1. Binders: For each operating and maintenance manual, provide heavy-duty, commercial quality, durable, three-ring, vinyl-covered, loose-leaf binders, one to two inches in thickness, as necessary to accommodate contents. Size binders to receive 8-1/2" x 11" paper. Provide a clear plastic sleeve on the spine, suitable for holding labels describing the binder's contents. Provide inside pockets in the front and back covers to receive folded sheets.
    - (a) Where it is necessary to use more than one binder to accommodate data, correlate the data in each binder into related equipment groupings in accordance with the project manual Table of Contents. Provide cross-references to other binders where necessary to provide essential information for proper operations or maintenance of the piece of equipment or system.
    - (b) Identify each binder on the front and the spine with the typed or printed title "OPERATION AND MAINTENANCE MANUAL", title or name of the project, and the subject matter covered in the manual. Indicate the volume number for multiple volume sets of manuals. Insert the C.S.I. specification section number on the bottom of the spine.

2. Dividers: Provide heavy paper dividers with celluloid-covered, labeled tabs for each separate section. Clearly mark each tab to indicate section contents. Provide a typed description of the product and major component parts of the equipment included in the section on each divider.
3. Protective Plastic Jackets: Provide protective transparent plastic jackets especially designed to enclose diagnostic software for computerized electronic equipment.
4. Text Material: Where written material is required as part of the manual, use either the manufacturer's standard printed material, or if this is unavailable, specially prepared data, neatly typewritten on 8-1/2" x 11", twenty-pound white bond paper.
5. Drawings: Where drawings or diagrams are required as part of the manual, provide reinforced, punched binder tabs on the drawings and bind in with the text.
  - (a) Where oversized drawings are necessary, fold these drawings to the same size as the text pages and use as a fold out.
  - (b) If the drawings are too large to be used practically as a fold out, place the drawing, neatly folded, in the front or rear pocket of the binder. Insert a typewritten page indicating the drawing title, description of the drawing contents and drawing location at the appropriate location in the manual.

## 1.5 MANUAL CONTENTS

- A. General: Organize the contents of each manual into separate sections for each piece of related equipment. Each operation and maintenance manual shall contain, as a minimum, a title page, a table of contents, copies of product data supplemented by drawings and written text, as appropriate, and copies of each warranty bond and service contract issued.
  1. Title Page: Provide a title page, enclosed in a clear transparent plastic envelope, as the first sheet of each manual. Provide the following information:
    - (a) Subject matter covered by the manual
    - (b) Name and address of the project
    - (c) Date of submittal
    - (d) Name, address and telephone number of the Contractor
    - (e) Name and address of the Contracting Officer
    - (f) Cross reference to related systems in other operating and maintenance manuals
  2. Table of Contents: Following the title page, include a neatly typewritten table of contents for each volume, arranged systematically according to the project manual format. Include in the table of contents a list of each product required to be included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.
    - (a) Where more than one volume is required to accommodate data for a particular system, provide a comprehensive table of contents for all volumes in the first volume of the set.
  3. General Information: Immediately following the table of contents, provide a general information section listing each product included in the manual, identified by product name. Under each product list the name, address and telephone number of the Subcontractor or installer, and the maintenance Contractor. Clearly delineate the extent of responsibility of each of these entities. In addition, list a local supply source for replacement parts and equipment.

4. **Product Data:** Where the manufacturer's standard printed data is to be included in the manuals, include only those sheets that are pertinent to the specific part or product installed. Clearly mark each sheet to identify each part or product included in the installation. Where more than one item in a tabular format is included in the installation, clearly identify each item, using appropriate references from the contract documents. Clearly identify data that is applicable to the installation, and delete references from the contract documents. Clearly identify data that is applicable to the installation, and delete references to information that is not applicable.
5. **Written Text:** Where standard printed data is not available from the manufacturer, and information is necessary for the proper operation and maintenance of building equipment or systems, or when it becomes necessary to provide additional information to supplement product data included in the manual, prepare written text, as required, to provide the necessary information. Organize this text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operating or maintenance procedure.
6. **Drawings:** Provide specially prepared drawings where it is necessary to supplement the manufacturer's standard printed data either to illustrate the relationship of component parts of equipment or systems, or to provide control or flow diagrams. Coordinate these drawings with the information contained in the project record drawings to assure correct illustration of the completed installation.
  - (a) Do not use original project record documents as part of the operating and maintenance manuals.
7. **Warranties, Bonds and Service Contracts:** Provide a copy of each warranty, bond or service contract in the appropriate operation and maintenance manual for the information of the Government's operating personnel. In addition to the documents, provide written data outlining the procedures to be followed in the event of product failure. In particular, list the circumstances and conditions that would affect the validity of the warranty or bond.

## **1.6 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL**

- A. **General:** Submit two (2) copies of each completed manual on equipment and systems, in final form, to the Contracting Officer for distribution. Provide separate manuals for each unit of equipment, each operating system and each electric and electronic system. See appropriate divisions for equipment lists.
  1. Refer to individual specification sections for additional requirements on the operating and maintenance of the various pieces of equipment and operating systems.
- B. **Equipment and Systems:** Provide the following information for each piece of equipment, each building operating system and each electric or electronic system, as appropriate:
  1. **Description:** Provide a complete description of each unit and related component parts including, but not limited to, the following:
    - (a) Equipment or system function
    - (b) Operating characteristics
    - (c) Limiting conditions
    - (d) Performance curves
    - (e) Engineering data and tests
    - (f) Complete nomenclature and commercial number of replacement parts.

2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following information:
  - (a) Printed operating and maintenance instructions
  - (b) Assembly drawings and diagrams required for maintenance
  - (c) List of items recommended to be stocked as spare parts.
3. Maintenance Procedures: Provide information detailing essential maintenance procedures including, but not limited to, the following:
  - (a) Routine operations
  - (b) Trouble-shooting guide
  - (c) Disassembly, repair and reassembly
  - (d) Alignment, adjusting and checking
4. Operating Procedures: Provide information on equipment and system operating procedures including, but not limited to, the following:
  - (a) Start up procedures
  - (b) Equipment or system break in
  - (c) Routine and normal operating instructions
  - (d) Regulation and control procedures
  - (e) Instructions on stopping
  - (f) Shut down and emergency instructions
  - (g) Summer and winter operating instructions
  - (h) Required sequences for electric or electronic systems
  - (i) Special operating instructions.
5. Servicing Schedule: Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for pieces of equipment with moving parts.
6. Controls: Provide both a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
7. Coordination Drawings: Provide each Contractor's coordination drawings.
  - (a) Provide as-installed, color-coded piping diagrams where required for identification.
8. Valve Tags: Provide charts of valve tag numbers, with the location and function of each valve.
9. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panelboards, including the following:
  - (a) Electric service



- (b) Controls
  - (c) Communication
10. Schedule: Provide complete information in the equipment and systems manual on products specified in the following sections:
- (a) Pipe Markers: Section 15190 - Mechanical Identification
  - (b) Air-Cooled Condensers Section 15660 - Condensing Units
  - (c) Air-Handling Units Section 15855 - Air-Handling Units
  - (d) Fans Section 16860 - Centrifugal Fans
  - (e) Filters Section 15885 - Air Cleaning
  - (f) Diffusers Section 15933 - Air Terminals
  - (g) Electric Conduit Section 16110 - Raceways
  - (h) Circuit Breakers Section 16180 - Overcurrent Protective Devices
  - (i) Telephones Section 16740 - Telephone Systems

#### 1.7 INSTRUCTION OF THE GOVERNMENT'S PERSONNEL

- A. General: Prior to final inspection, instruct the Government's designated operating personnel in the operation, adjustment and maintenance of products, equipment and systems. Provide instruction at mutually agreed-upon times.
- 1. For equipment that requires seasonal operation, provide similar instruction during other seasons.
  - 2. Use the operations and maintenance manuals for each piece of equipment or system as the basis of instruction. Review the contents of each manual in detail to explain all aspects of operation and maintenance.
  - 3. Secure a signed letter from the Government that such instructions were received and understood.

#### PART 2 -- PRODUCTS

NOT APPLICABLE

#### PART 3 -- EXECUTION

NOT APPLICABLE

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END OF SECTION

PART 1 - GENERAL

RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary General Conditions and Division-1 Specification sections, apply to work of this section.

1.1 SECTION INCLUDES

- A. General standards

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Material and Equipment: Section 01600.
- B. The Specification Section for the Work.

1.3 GENERAL STANDARDS APPLICABLE TO ALL SPECIFICATION SECTIONS

- A. These provisions, standards, and tolerances shall apply to all work under this contract. Where stricter standards and tolerances are specified, they shall take precedence over these standards and tolerances.
  - 1. Some of the requirements specified in the Section are performing requirements. The Architect will cooperate in deciding how best to make the work conform to these performance requirements, and he will issue prompt interpretations and explanations of these requirements when requested to do so.
- B. Build and install parts of the work level, square, plumb, and in correct position impair its function or that of the project.
  - 1. No part shall be out of plumb, level, square or correct position so much as to impair its function or that of the project.
  - 2. No part shall be out of plumb, level, square, or correct position so much as to impair the aesthetic effect of the part of the project as judged by the Architect.
  - 3. The following tolerances shall apply to plane surfaces unless stricter tolerances are specified. These tolerances shall not apply to work for which, in the Architect's interpretation, they are clearly inappropriate.
    - a. No point in the plane surface shall be out of correct position by more than 1/8".
    - b. No tangent to the plane surface shall vary from the vertical horizontal, or other indicated plane by more than 1/2" in 12'.
- C. Make joints tight and neat. If such is impossible, apply moldings, sealant, or other closure as directed by Contracting Officer.
- D. Under potentially damp conditions, provide galvanic insulation between different metals which are not adjacent on the galvanic scale.
- E. All fasteners used by all trades on the exterior of the building and where dampness and corrosion resistant.
  - 1. Fasteners used for exterior wood rim, whether set and puttied or not, shall be stainless steel or not, shall be stainless steel or aluminum.
  - 2. Fasteners for other carpentry on the exterior or in potentially damp locations shall be stainless steel, aluminum, or hot dip galvanized steel.
  - 3. Fasteners for copper and brass in all locations and under all conditions shall be copper or brass.
  - 4. Fasteners for stainless steel shall be stainless steel.
  - 5. Fasteners for aluminum.

6. Fasteners for ferrous metals shall be galvanized or stainless steel.
  7. Fasteners for other materials on the exterior of the building and where dampness and corrosion can reasonably be anticipated shall be one of the types specified above.
  8. If corrosion resistant fasteners are not available, notify Architect. Architect will direct alternative protection.
- F. Apply protective finish to parts of the work before concealing parts. For example, paint door tops and bottom before hanging doors, and paint corrosible mounting plates before installing parts over them.
1. Paint aluminum embedded in masonry with bituminous paint.
  2. Coat concealed wood exposed in masonry with heavy coat of water repellent toxic fungicide.
  3. Paint other concealed materials with same primer and finish specified for exposed surfaces. If concealed materials are fully covered, primer alone is sufficient.
  4. Concealed parts which are already corrosion protected need not be painted unless specified otherwise.
- G. Manufacturers, subcontractors, and workmen shall be experienced and skillful in performing the work assigned to them.
- H. Verify critical dimensions in the field before fabricating items which must fit adjoining construction.
- I. Where accessories are required in order to install parts of the work in usable form, provide such accessories.
- J. All paint used on all products shall conform to A.N.S.I. A66.1-1964, "Specifications to Minimize Hazards to Children from Residual Surface Coating Materials".
- K. Follow manufacturer's instructions for assembling, installing and adjusting products. Where manufacturer's instructions conflict with Contract Documents, request instructions from Architect.
- L. Adjust and operate all items of equipment, leaving them fully ready for use.
- M. All guarantees, warranties, and service maintenance agreements shall commence on the date of substantial completion of the work or the item being guaranteed, whichever is later, so that Owner receives full use of the item for the guarantee period.
- N. All materials and equipment shall comply with the Occupational Safety and Health Act as amended.

**1.4 GENERAL WORK TO BE PERFORMED AS PART OF GENERAL CONSTRUCTION**

- A. Seal cracks and openings so as to make exterior skin of building tight to the weather. If methods of doings so are not specified, notify Architect, and proceed as directed by the Architect.
- B. Provide adequate blocking, bracking, nailers, and fastenings to install parts of the work securely. Installed parts shall be able to withstand 2-1/2 times the maximum anticipated load as estimated by Architect. Block, bracing, nailers, and fastenings shall not be subject to deterioration or weakening as the result of normal environmental conditions or aging.
- C. Perform cutting and patching required for all trades. Use workmen skilled in such work. Patch holes where ducts, conduit, pipes, and other items pass through existing construction.

Patch holes where ducts, conduits, pipes, and other items are removed from existing construction.

- D. Furnish access doors and panels in addition to those specified in other Sections as required for access to equipment requiring adjustment, inspection, maintenance, or other access. Access panels shall be one of the following:
  - 1. If assembly is rated, access doors shall be Inland-Ryerson Construction Products Co. "Milcor" Fire Rated Access Door or equal by Birmingham Ornamental Iron Co., Inc. or equal by Miami Carey, or approved equal by others.
  - 2. If assembly is not rated, doors shall be Inland-Ryerson "Milcon" "Style M". "Style DW", or "Style AT", as is appropriate for adjacent construction, or equal by Birmingham Ornamental Iron Co. or equal by Miami Carey, or as approved equal by others.

If installation of access doors, plates and panels is not specified elsewhere, install them. For estimating purposes, assume that no more than 8 access doors are required. If number is greater, notify Architect. Adjustments, if ordered, will be made by Change Order.

- E. Check drawings for requirements for bases, pads, and other supporting structures. Provide such supporting structures.
- F. As part of the one year warranty specified in the General Conditions, repair cracks and other faults which occur as a result of settlement and shrinkage during the first year after substantial completion. This does not include faults which are due to abuse of the project of abnormal faults which result from inadequate design.

#### 1.5 REFERENCE STANDARDS

- A. Unless date is listed, reference to standard specifications shall mean latest edition of such specifications published at date of bid documents.
- B. Reference to technical society or organization is made in the Project Manual according to the following abbreviations:

A.I.A.	American Institute of Architects
A.C.I.	American Concrete Institute
A.I.E.E.	American Institute of Electrical Engineers
A.I.S.C.	American Iron and Steel Institute
A.N.S.I.	American National Standards Institute (Obsolete designations are A.S.A. and U.S.A.S.I.)
A.P.A.	American Plywood Association (Obsolete designation is D.F.P.A.)
A.S.M.E.	American Society of Mechanical Engineers
A.S.T.M.	American Society of Testing and Materials
A.W.I.	Architectural Woodwork Institute
A.W.S.	American Welding Society
F.S.	Federal Specification
N.B.S.	National Electrical Code
N.E.C.	National Electrical Code
S.I.G.M.A.	Sealed Insulating Glass Manufacturers Association
S.S.P.C.	Steel Structures Painting Council
U.L.	Underwriters Laboratories, Inc.
Form 811	Connecticut State Highway Department Standard Specification for Roads, Bridges, and Incidental Construction

#### 1.7 COORDINATION

- A. This section shall not be interpreted to relieve Contractors of his sole responsibility of supervision and coordination of all construction procedures as provided herein and in General and Special Conditions.
- B. Contractor shall be responsible for supervising and directing the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of Work under Contract.
- C. Contractor shall be responsible for acts and omissions of his employees, subcontractors, and their agents and employees.
- D. Contractor shall not be relieved from his obligation to perform Work complying with Contract Documents, either by the activities of the Contracting Officer in administration of Contract or by inspections, tests, or approvals required to substantiate Contract compliance.
- E. Provisions of this section are considered minimal for orderly and expeditious prosecution of Work.

**----- END OF SECTION -----**